

COVID-19 and Physical (In-)Activity

COVID-19 und körperliche (In-)Aktivität

On December 31, 2019 first case of an unexplained low respiratory infection detected in Wuhan (China) was reported to the WHO Country Office in China. The WHO Director Dr. Tedros Adhanom Ghebreyesus, announced that the disease caused by a new coronavirus (CoV), called "COVID-19", which is the acronym of "coronavirus disease 2019".

Introduction

This new virus has rapidly spread around the world, with the number of infected pneumonia patients that far exceeded that of SARS (severe acute respiratory syndrome) in 2003. Unfortunately, the COVID-19 cases are continuing to climb. Until 20th October 2020, a total of over 40 million infected patients (including over 1.100.000 deaths) were reported by the World Health Organization. In addition to the challenge of the COVID-19 pandemic for the health care system the current situation revealed numerous effects on physical (in-)activity levels and thus on public health.

Physical (In-)Activity and Health

Physical inactivity is a modifiable risk factor for several chronic diseases (e.g. cardiovascular diseases, cancer, diabetes, neurodegenerative diseases) (12, 15). In contrast, physical activity and/or exercise is a low-cost intervention in primary and secondary prevention for numerous chronic diseases (17, 19, 22). Current research indicates strong evidence of physical activity effects on reduced rates of all-cause mortality, coronary heart disease, high blood pressure, cancer, diabetes, depression, stroke, and falling (15). Furthermore, strong evidence indicates increased cardiorespiratory and muscular fitness, improved bone health, improved cognition and healthier body mass and composition following physical activity.

Currently, a variety of recommendations exists to meet the minimum requirement for physical activity. The WHO has recommended a minimum of 150-min moderate-intensity or 75 min vigorous-intensity aerobic activity and strength training per week (10). Already before COVID-19 pandemics a global analysis reports a prevalence of insufficient physical activity of 27.5 % (11). The highest physical inactivity levels were in women in Latin America and the Caribbean

(>40%) and high-income Western countries (>40%). Because of the high prevalence of global physical inactivity and its effect on major non-communicable diseases this presents a major public health problem.

COVID-19 and Physical (In-)Activity

Due to home-confinement and social isolation during the COVID-19 pandemic, reductions in performing physical activities were apparently observed (2, 23). Preliminary results from a global questionnaire indicated that physical activity decreased by over 20% and daily sitting time increased by more than 28% during the COVID-19 pandemic (2, 3, 4). A cross-sectional online survey reported a physical activity level decrease of 26.5% in older community-dwellers in Japan (23). Additionally, Tison et al. reported a global decrease of daily steps (mean 27.3% within 30 days following pandemic declaration) with large regional differences (20). In recognition of the strong relationship between physical activity and public health, the WHO agreed to a 10% relative reduction in the prevalence of physical inactivity by 2025 as one of the nine global targets to improve prevention of non-communicable diseases (9). This target is in the context of the COVID-19 pandemic hardly reachable.

COVID-19, Physical (In-)Activity and Public Health

Due to the negative effects of the COVID-19 pandemic on physical activity levels interdisciplinary prevention approaches are urgently needed. Especially, an active lifestyle (including physical and social activity) is an important modifiable factor for maintaining health benefits across lifespan. In this context we recommend emphatic physical activity and social interactions (under consideration of current restrictions) to counteract negative effects of the COVID-19 pandemic. Furthermore, physical exercise exerts anti-inflammatory effects (8) and thus maybe potentials against viral diseases like COVID-19 (1, 5, 21).

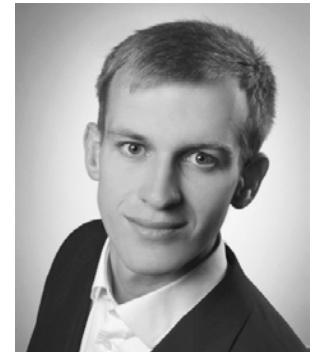
In the absence of a specific investigation focused on the value of enhanced physical activity during quarantine and a difficult to predict further development of the COVID-19 pandemic physical activity and exercise recommendations need a revision. In particular home-based workouts (including endurance, resistance and balance exercises) and

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Dr. Patrick Müller
Junior Editor; German Journal
of Sports Medicine

¹German Centre for Neurodegenerative Diseases, Magdeburg, Germany

²Department of Neurology, Otto-von-Guericke University, Magdeburg, Germany

³Institute of Sports Science, Otto-von-Guericke University, Magdeburg, Germany

⁴Exercise and Mental Health Laboratory, Shenzhen University, Shenzhen, China

⁵Center for Behavioral Brain Science (CBBS), Magdeburg, Germany



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CORRESPONDING ADDRESS:

Dr. Patrick Müller
German Centre for Neurodegenerative
Diseases (DZNE)
Leipziger Str. 44, 39120 Magdeburg, Germany
✉: Patrick.mueller@dzne.de

outdoor activities should be recommended (6, 7, 14, 16).

Future research is needed to investigate the impact of the COVID-19 pandemic on physical activity and health in detail. Particularly, the long-term consequences would be central for future research. It can be assumed that the negative consequences of the COVID-19 pandemic on physical inactivity would have elementary consequences for public health including increased risk for several chronic diseases (e.g. diabetes, coronary heart disease, depression, dementia (13, 18)). ■

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